May 2011 Status Report on R/ECON™ Modeling Efforts Including Collection and Analysis of Broadband Market Data

Analysis of the Impact of the Spread of Broadband on New Jersey's Economy

It is reported that the "diffusion of broadband lies at the heart of considerable economic growth."[1] This statement is based upon economic analyses conducted for the U.S. economy as a whole. Our primary goal in this project activity is to analyze how the spread of broadband impacts the economy of the state of New Jersey. To do so, we will make use of R/ECON™, which is a comprehensive set of tools for analyzing the New Jersey economy. R/ECON provides a large-scale econometric model of New Jersey's economy and supports simulation studies and related analytics. The information from these studies can be used to inform and direct efforts to improve the state's economy.

In this initial phase of the work we have:

- Characterized trends in the information industry in terms of employment and output (real gross state product) for the time period 1990-2010. We analyzed both the telecom sector from NJ Dept of Labor data and the broadcasting and telecom sector from the US Bureau of Economic Analysis.
- Enhanced R/ECON to include equations for employment and output in telecommunications and to include a variable for broadband household penetration.
- The broadband variable is highly significant in the telecommunications output equation—that is we can say with a 99% degree of confidence that broadband penetration is positively related to increasing output in telecommunications. This variable will be used in simulations in the later parts of this study, in conjunction with changing broadband prices, to see how the spread of broadband impacts the state's economy.

Our next steps will be directed at the following:

- Expanding either the R/ECON model or its assumptions to capture broadband pricing impacts. Our first choice is to obtain historical price data from commercial vendors and use this date to produce state level price indices for residential and business broadband. If such data are too expensive or unlikely to be useful to us, we will pursue the alternate path of making defensible assumptions about future broadband prices rather than building formal equations into the model.
- Model validation to test the model for reasonable behavior prior to performing the simulation phase of the study.
- Assessing the importance of telecommunications and broadband as an input to various industries. In this area we will begin to study how changing prices for commercial broadband services will impact the industries and the general economy.

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[1] Shane Greenstein and Ryan C. McDevitt, *Evidence of a Modest Price Decline in US. Broadband Services*, NBER Working Paper 16166, July 2010, p. 2.